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L11: Entry 6 of 9

File: USPT

Dec 25, 2001

DOCUMENT-IDENTIFIER: US 6333631 B1

TITLE: Cantilevered manipulator for autonomous non-contact scanning of natural surfaces for the deployment of landmine detectors

Brief Summary Text (4) :

A number of technologies have been applied to the ground-based detection of landmines. In the simplest instance is the individual armed with only a hand-held prod for probing the ground and relying upon their experience to gauge the level of hazard associated with a contacted object. Hand-held electronic mine detectors are an improvement in but, the proximity of the operator to the detector still presents a risk. At the other extreme are complex and expensive remote-controlled vehicles with sensor arrays preceded by a preconditioning flail vehicle to remove anti-personnel mines. These vehicle mounted sensor detectors are ideal for level terrain, particularly road services.

Detailed Description Text (29) :

An articulated plastic detector arm 2 and a laterally-pivotable plastic LRF arm 25 were mounted to the front of the MR-1 vehicle 6. The detector arm 2 used three separate actuator motors 20,21,22 at its proximal end 8 for implementing arm pan, tilt and roll. Arm roll and mine detector pitch control were not implemented in this example. The LRF arm 25 used an actuator 27 at its proximal end 24 for panning functions.

Detailed Description Text (56) :

improved function of the detector arm such as providing an axial extension capability to permit the mine detector to be moved a short distance along the line of advance without moving the vehicle; and implementation of the wrist pitch joint at mine detector for dynamically adjusting the mine detector pitch angle to smoothly avoid terrain which changes along the line of advance;